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GORDON RESEARCH CONFERENCE IN ORGANOMETALLIC CHEMISTRY

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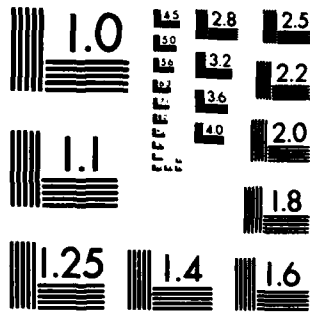
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## 20. Abstract (cont)

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The conference encompassed 26 invited talks and 37 poster session presentation. Three papers concerned electron transfer of the Group I elements. Both anions and cations may be solvolyzed. The affinity for oxygen by certain transition metals (Zr, Mo) is an important driving force in organic rearrangement reactions. Breaking into a C-H bond still represents a formidable task, but it can be achieved with certain Ir complexes. The organometallic chemistry of La and of the actinides represents relatively unexplored territory. Organometallics are important in a number of commercial processes, e.g., fatty olefins, hexamethylene diamine. Synthesis of glycol from syn gas is promising, and CO<sub>2</sub> may substitute for CO as a building block. Clusters may range from bare metals, through di and trimers to multiply-bonded species. Tin, in both plus 2 and plus 4 valencies, has a very extensive organometallic chemistry.

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# Gordon Conference on Organometallic Chemistry

August 16-20, 1982, Andover, NH

## Final Conference Report

The above named Conference encompassed 26 invited talks and 37 poster session presentations. Copies of the Scientific Program and Poster Session presentations are attached.

Three papers concerned electron transfer of the Group I elements. Both anions and cations may be solvolyzed. The affinity for oxygen by certain transition metals (Zr, Mo) is an important driving force in organic rearrangement reactions. Breaking into a C-H bond still represents a formidable task, but it can be achieved with certain Ir complexes. The organometallic chemistry of La and of the actinides represents relatively unexplored territory. Organometallics are important in a number of commercial processes, e.g., fatty olefins, hexamethylene diamine. Synthesis of glycol from syn gas is promising, and CO<sub>2</sub> may substitute for CO as a building block. Clusters may range from bare metals, through di and trimers to multiply-bonded species. Tin, in both +2 and +4 valencies, has a very extensive organometallic chemistry.

The AFSC funding was important in supplementing the allotment received from the Gordon Conferences. There was a great deal of interest in the meeting as evidenced by the receipt of approximately 225 applications for the 145 maximum attendees that could be accommodated. A list of attendees is enclosed. A meeting of the Steering Committee was held at which it was recommended that the Organometallic Conference be held on an annual basis. The recommendation was validated by a vote of the entire group. The Chairman for the next meeting is Jack Faller of Yale University and Vice-Chairman is Duane Dombeck of Union Carbide.

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1982 GORDON RESEARCH CONFERENCE ON ORGANOMETALLIC CHEMISTRY

Schedule for Poster Displays

(Authors of poster displays are requested to be available in the vicinity of their display to answer questions from 5:15 to 5:45 p.m. on the days that their display is scheduled.)

Monday and Tuesday, August 16, 17 (Papers Nos. 1 through 16)

1. Mark Andrews and Chi-Wen F. Cheng, Brookhaven National Laboratory,  
"Heterometallacycles and  $\beta$ -Hydrogen Elimination in Catalytic Alkene Oxidation by Transition Metal Nitro and Related Complexes."
2. Thomas B. Brill and Shayne J. Landon, University of Delaware,  
"The Arbusov Reaction with Transition-Metal Organometallics."
3. Maurice Brookhart, R. Husk, S. Kegley, G. Williams and D. Smith,  
University of North Carolina,  
"Reactions of Electrophilic Ethylidene Complexes,  $\text{Cp}(\text{CO})(\text{L})\text{Fe}=\text{CHCH}_3^+$   
( $\text{L}$ =phosphines,  $\text{CO}$ ) with Substituted Styrenes - Mechanistic Implications."
4. John W. Connolly, University of Missouri-Kansas City,  
"Addition of  $\text{HFe}(\text{CO})_4\text{SiCl}_3$  to Isoprene - Is It Concerted?"
5. Thomas Bodnar and Alan Cutler, Rensselaer Polytechnic Institute,  
"Carbonylation Reactions of Electrophilic Alkylidene Complexes.  
Conversion of  $\text{CpFe}(\text{CO})_2\text{CH}_2^+$  and Related Alkylidene Compounds to Carboalkoxymethyl Complexes."
6. James Markham and Alan Cutler, Wesleyan University,  
"Comparison of the Reactivities of the Organometallic Lewis Acids  
 $\text{CpMo}(\text{CO})_3\text{PF}_6$  and  $\text{CpMo}(\text{CO})_2\text{PF}_6$  with  $\text{Cp}^*\text{Ir}(\text{CO})_3\text{CH}_3$ ."
7. Richard Eisenberg and Barbara J. Fisher, University of Rochester,  
"Functionalization of a Carbon-Hydrogen Bond Using  $\text{IrH}_3(\text{CO})(\text{dppe})$ .  
Carbonylation of Benzene to Benzaldehyde."
8. Odile Eisenstein and Francois Volatron, University of Michigan,  
"An Organic Analogy to the Metathesis-Cyclopropanation Competition of  
Transition Metal Complexes. Preliminary ab initio Study of the Reaction  
of Phosphorus, Sulfur and Sulfoxide Ylids with Carbonyl Groups."
9. Richard D. Ernst, University of Utah,  
"Metal-Pentadienyl Compounds."
10. J. W. Faller, Yale University,  
"Control of Conformation and Regiochemistry by Electronic Effects."
11. Thomas C. Flood and John A. Statler, University of Southern California,  
"Rearrangement of (1-Methylcyclobutyl)platinum Complexes. Mild Carbon-  
Carbon Activation of a Strained Alkyl Ligand by Platinum(II)."
12. Warren P. Giering, Roy H. Magnuson and Randy E. Meirowitz, Boston University,  
"Oxidatively Promoted Alkyl to Acyl Migratory Insertion Reactions.  
Thermodynamics, Kinetics and Redox Catalysis."

13. John W. Hull, Jr. and Wayne L. Gladfelter, University of Minnesota, "Synthesis, Structure, and Reactivity of  $\text{Ru}(\eta^6\text{-C}_6\text{Me}_6)(\eta^4\text{-C}_6\text{Me}_4(\text{CH}_2)_2)_2$ . An Unusual Transition Metal  $\eta$ -Xylylene Complex."
14. Steven P. Hopper and Bernard Kanner, Union Carbide Corporation, "Silylation of Activated Acetylenes."
15. Russell P. Hughes, N. M. McGrady and D. E. Samkoff, Dartmouth College, "Octafluorocyclooctatetraene Transition Metal Compounds."
16. William D. Jones and Frank J. Feher, University of Rochester, "Activation and Functionalization of C-H Bonds by Rhodium Complexes."
- 16a. H. Withers, D. Seyferth\*, MIT; J. D. Fellmann and P. E. Garrou, Dow Chemical, "The Synthesis of Poly-1,1'-ferrocenylenephosphine Oligomers and Polymers and the Use of Such Materials as Catalyst Supports."

Wednesday and Thursday, August 18, 19 (Papers Nos. 17 through 35)

17. L. R. Beanan, Z. Abdul Rahman, J. B. Keister, H. J. Wasserman and M. R. Churchill, State University of New York at Buffalo, "Acetylene and Diene Reactions with Methylidynetriruthenium Clusters."
18. Jay A. Labinger, John N. Bonfiglio, David L. Grimmett, Steven T. Masuo, Eileen Shearin and Joel S. Miller, Occidental Research Corporation, "Amphoteric Ligands: Facile Migrations in Alkyl- and Hydridometal Carbonyl Complexes."
19. Mary Therese Zoeckler and Richard M. Laine, SRI International, "Catalytic Activation of the Silicon-Nitrogen Bond. Reactions of Silazanes with  $\text{CO}_2$ ."
20. Joseph S. Merola, Robert A. Gentile, Gerald B. Ansell, Michelle A. Modrick and Susan Zentz, Exxon Research and Engineering Co., "Bimetallic Titanium/Molybdenum Complexes Containing M-O-C-M' Bridges."
21. David Milstein, E. I. du Pont de Nemours & Co., "Cis-Hydridoalkyl-Rhodium and -Iridium Complexes Via Epoxides. Mechanism of Hydridoalkyl Reductive Elimination."
22. Michael E. Wright and Gregory O. Nelson, University of Arizona, "Evidence for Enhanced Reactivity in the Photofragmentation of the Bridged Dinuclear System  $\text{Me}_2\text{Si}[\eta^5\text{-C}_5\text{H}_4\text{Fe}(\text{CO})_2(\eta^1\text{-CH}_2\text{C}_6\text{H}_5)]_2$ ."
23. K. M. Nicholas, Boston College, "On the Possible Intermediacy of the Hydroxycarbyne Complexes in Carbon Monoxide Reduction."
24. S. B. Jones, K. Howard and Jeffrey L. Petersen, West Virginia University, "Reactivity of Binuclear Zirconocene Hydrides."
25. Herman G. Richey, Jr., Edward K. Watkins and Mark A. Smith, Penn State Univ., "Reactions of Main Group Organometallic Compounds with Cyclopropenes."
26. Dennis Riley, The Procter & Gamble Company, "Synthesis of a New 20-Membered Hexathia Crown Ether and the Characterization of Its Novel Complexes with  $\text{Rh(I)}$ ."

27. L. Chamberlain, J. C. Huffman and I. P. Rothwell, Purdue University,  
"Cyclotantalation of 2,6-di-tert-butylphenoxide."
28. John P. Selegue, University of Kentucky,  
"Metallacumulenes."
29. Ayusman Sen, Ta-Wang Lai and Richard R. Thomas, Pennsylvania State University,  
"Interaction of Olefins with Electrophilic Transition Metal Centers."
30. S. G. Davies, S. J. Simpson and J. Hibberd, University of Oxford,  
"Homogeneous Hydrogenation of Carbon Monoxide."
31. Barrie A. Sosinsky, Rice University,  
"The Chemistry of Mixed Metal Tetracarbonyl Ferrates."
32. Barrie A. Sosinsky, Rice University,  
"Spectroscopic Study of Iron Carbonyl Clusters and Comparison to Chemisorbed Species on Iron Metal."
33. Kenneth S. Suslick, Paul F. Schubert, Hsien-Hau Wang and James W. Goodale,  
University of Illinois,  
"Organometallic Sonochemistry and Sonocatalysis."
34. Andrea L. Wayda, Bell Laboratories,  
"Derivative Chemistry of Cyclooctatetraenyl Lanthanide Complexes."
35. Richard M. Laine, Bong Rae Cho and Robert B. Wilson, Jr., SRI International,  
"Homogeneous Catalytic Reactions of Amines with Syngas."
36. A. St. Clair and Clifford P. Kubiak, Purdue University,  
"Photochemistry of di-Palladium Isonitrile Complexes."
37. Thomas E. Cole and Clifford P. Kubiak, Purdue University,  
"CO/O<sub>2</sub> Fuel Cells: Catalysis of CO Oxidation at Electrode/Electrolyte Interfaces."



GORDON RESEARCH CONFERENCES

ORGANOMETALLIC CHEMISTRY

August 16-20, 1982  
Proctor Academy, Andover, N.H.

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J. Faller, Vice-Chairman

Monday, August 16

"Alkalides and Electrides- Salts Which Contain  
Alkali Metal Anions or Trapped Electrons"

"Structure and Dynamics of Alkyl Li Compounds"

"Electron Transfer and Hydrogenation of Arenes"

"Migratory Insertion Reactions of Early Transition  
Metal Hydrides and Alkyls"

"Olefin Metathesis Catalysts"

H. Alper, Chairman  
University of Ottawa

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Michigan State

G. Frankel  
Ohio State

G. Pez  
Air Products

J. Lyons, Chairman  
Sun Tech

J. Bercaw  
Cal. Tech.

J. Osborne  
Universite Louis Pasteur

Tuesday, August 17

"Organotransition Metal Intermediates Containing  
Reactive Single Carbon Ligands"

"Alkane Activation by Iridium Compounds"

"Low-Valent Organolanthanide Chemistry"

"New Stoichiometric and Catalytic Actinide  
Organometallic Chemistry"

"Linear Oligomerization of Olefins: Technical  
Applications of 1-Olefins and n-Octenes"

"Reactivity and Structure of Olefin Zirconium  
Complexes"

J. Labinger  
Occidental Res.

J. Cooper  
Harvard

R. Crabtree  
Yale

W. Evans  
University of Chicago

T. Marks  
Northwestern

G. Doyle, Chairman  
Dupont

W. Keim  
University of Aachen

G. Erker  
Ruhr-Universitat Bochum

Tuesday, August 17 (Continued)

"Hydrocyanation of Olefins"

W. Drinkard  
Dupont

Wednesday, August 18

"Metal Clusters Without Ligands: Fluxional  
Molecules with Multiple Bonding"

R. Eisenberg, Chairman  
University of Rochester

M. Moskovits  
University of Toronto

"Clusters in Catalysis" Basic Steps as Revealed  
by Triosmium Clusters"

R. Adam  
Yale

"Catalytic Reactions Involving Metal-Carbon Multiple  
Bonds"

R. Shrock  
MIT

"Organometallic Cluster Chemistry and Catalysis"

J. Shapley  
University of Illinois

D. Seyferth, Chairman  
MIT

"Soluble and Surface Metal Alkyls"

G. Whitesides  
Harvard

"Compounds with Metal-Metal and Metal-Carbon Bonds"

A. Cotton  
Texas A&M

Thursday, August 19

"Two-Carbon Products from Syn Gas Involving  
Homogeneous Catalysts"

O.T. Beachley, Jr. Chairman  
SUNY, Buffalo

D. Donbeck  
Union Carbide

"Reduction of CO<sub>2</sub> by Metal Hydrides and Alkyls"

D. Darensbourg  
Tulane

"Synthesis, Spectroscopic and Structural Properties  
of Organotin II and IV Species"

J. Zuckerman  
University of Oklahoma

R.H. Fish, Chairman  
University of California

"The Aqueous Chemistry of Biogenic Organometals"

F. Brinckman  
National Bureau of Standards

"Targeting Potential Anti-Cancer Organometallic  
Drugs and the Lidex Serendipity"

M. Cais  
Technion

Friday, August 20

F. Mares, Chairman  
Allied

"Formation and Properties of Transition Metal Carbonyl  
Radicals"

T. Brown  
University of Illinois

"Radical Reactions of Hydrido Cobalt and Manganese  
Carbonyls"

M. Orchin  
University of Cincinnati

"Synthesis, Structure and Reactivity of Organo-Transition  
Metal Complexes"

M. Green  
Oxford University

GORDON RESEARCH CONFERENCES

ORGANOMETALLIC CHEMISTRY

Proctor Academy, Andover, N.H.  
August 16-20, 1982

REGISTRATION LIST

Adams, Richard D. Farm 1  
Yale University  
225 Prospect St./ Chemistry  
New Haven, CT 06511

Albright, Thomas Farm 1  
University of Houston  
Dept. of Chemistry  
Houston, TX 77004

Alper, Howard John 2  
University of Ottawa  
Dept. of Chemistry  
Ottawa, Ontario, Canada K1N 9B4

Andrews, Mark John 3  
Brookhaven Nat'l Lab.  
Dept of Chemistry  
Upton, NY 11973

Bahsoun, Ali Farm 2  
C.N.R.S.- Universite Louis Pasteur  
Institut Le Bel, 4 rue Blaise Pascal  
67000 Strasbourg, France

Austin, Richard G. Farm 2  
Exxon Chemical Co., New Ventures Tech Div.  
4 Pearl Court  
Allendale, NJ 07401

Barefield, E. Kent John 1  
Georgia Institute of Technology  
School of Chemistry  
Atlanta, GA 30332

Beachley, Ted John 4  
SUNY at Buffalo  
Dept. of Chemistry  
113 Acheson Hall  
Buffalo, NY 14214

Beavers, William Farm 3  
Texas Eastman Co.  
Box 7444 Dept. 5b  
Longview, TX 75607

Bercaw, John E. Farm 3  
California Institute of Techn.  
Dept. of Chem./ 1201 F. Calif. Blvd.  
Pasadena, CA 91125

Bleeke, John John 2  
Washington University  
Dept of Chemistry, Box 1134  
St. Louis, MO 63130

Bortinger, Arie Mort 2  
Exxon Chemical Co.  
4 Pearl Ct  
Allendale, NJ 07401

Braitsch, David Carr 6  
Eastman Kodak Co.  
Rochester, NY 14650

Braitsch, D.M.  
(Guest of David Braitsch)

Breslow, David Carr 2  
Hercules Inc./ Research Ctr.  
Wilmington, DE 19899

Breslow, Ann  
(Guest of David Breslow)

Bright, John H. Sum 21  
American Cyanamid Co.  
Chemical Research Div. Bldg. 4c  
Bound Brook, NJ 08805

Bright, Kathleen  
(Guest of John Bright)

Brill, Thomas John 4  
University of Delaware  
Dept of Chemistry  
Newark, Delaware 19711

Brinckman, Frederick  
National Bureau of Standards  
Materials Chemistry Div.  
Washington, D.C. 20234

Brookhart, Maurice John 24  
University of North Carolina  
Dept. of Chemistry  
Chapel Hill, NC 27514

Organometallic Chemistry  
Registration List

-2-

Brown, Theodore Mort 2.  
University of Illinois  
330 Admin. Bldg. 506 S. Wright St.  
Urbana, IL 61801

Bursten, Marian Stager Ives 22  
Ashland Chemical Co.  
PO Box 2219  
Columbus, OH 43216

Butler, Ian Smith 1  
McGill University  
Dept of Chemistry  
Sherbrooke St.  
Montreal, Canada

Byers, Blaine Mort 3  
College of the Holy Cross  
College St./ Chemistry Dept.  
Worcester, MA 01610

Cais, Michael John 23  
Technion-Israel Institute of Tech.  
Chemistry Dept.  
Haifa, Israel 32000

Ceretice, Steven Mack 1  
Amoco Chemical Corp.  
Box 400 Warrenville Rd.  
Naperville, IL 60566

Cohen, Haim Mort 3  
Nuclear Research Ctr.  
Chemistry Div.  
PO Box 9001  
Beer-Sheva, Israel

Collum, David MLS 21  
Cornell University  
Dept of Chemistry  
Ithaca, NY 14853

Colvin, Howard Mort 22  
Goodyear Tire & Rubber  
142 Goodyear Blvd. Dept 455 B4  
Akron, OH 44316

Connolly, John Mort 22  
University of Missouri-Kansas City  
Dept. of Chemistry  
Kansas City, MO 64110

Cooper, N. John Mack 2  
Harvard University  
12 Oxford St.  
Cambridge, MA 02138

Coville, N.J. Smith 2  
University of The Witwatersrand  
Johannesburg, South Africa

Crabtree, R.H. Davis 1  
Yale University  
225 Prospect St.  
Dept of Chemistry  
New Haven, CT 06511

Cutler, Alan R. Smith 1  
Rensselaer Polytechnic Institute  
Troy, NY 12181

Danrensbourg, Donald J. Smith 2  
Tulane University  
Dept of Chemistry  
New Orleans, LA 70118

Dean, Walter Mort 24  
Ethyl Corp., Research Labs  
1600 West Eight Mile Rd.  
Ferndale, MI 48220

Dickson, Mark Mort 24  
Shell Development Co.  
PO Box 1380  
Houston, TX 77001

Dombek, Duane Mack 3  
Union Carbide Corp.  
PO Box 8361  
South Charleston, WV 25303

Doyle, Gerald Mack 4  
Exxon Research and Engineering Co.  
Corporate Research Science Lab. Box  
Linden, NJ 07036

Dye, James Carr 3  
Michigan State University  
Dept of Chemistry  
East Lansing, MI 48824

Dye, Angeline  
(Guest of James Dye)

Eisenberg, Richard Mack 6  
University of Rochester  
Dept of Chemistry  
Rochester, NY 14627

Eisenstein, Odile Ives 22  
University of Michigan  
Dept of Chemistry  
Ann Arbor, MI 48197

Organometallic Chemistry  
Registration List

-3-

Erker, Gerhard   MLS 22  
Ruhr-Universität Bochum  
Abteilung für Chemie, Postfach  
102148, D-4630 Bochum, Germany

Ernst, Richard   Mort 25  
University of Utah  
Dept of Chemistry  
Salt Lake City, UT 84112

Evans, William J.   MLS 22  
The University of Chicago  
Dept of Chemistry, 5735 So. Ellis Ave.  
Chicago, IL 60637

Faller, Jack   Davis 1  
Yale University  
Dept of Chem/ 225 Prospect St.  
New Haven, CT 06511

Fish, Richard  
Lawrence Berkeley Lab.  
University of California  
Berkeley, CA 94720

Flood, Thomas   Mack 7  
University of Southern California  
Dept. of Chemistry  
Los Angeles, CA 90089

Fraenkel, Gideon   Davis 24  
Ohio State University  
140 W. 18th St.  
Columbus, OH 43210

Garrou, Philip   Mack 21  
Dow Chemical USA New England Lab.  
Box 400, 412 Commonwealth Rd.  
Wayland, MA 01778

Gibson, Thomas W.   Mort 25  
Proctor & Gamble Co. Miami Valley Lab.  
PO Box 39175  
Cincinnati, OH 45247

Giering, Warren   MLS 23  
Boston University  
Dept. of Chemistry  
675 Comm Ave.  
Boston, MA 02215

Girolami, Gregory   Sum 1  
Imperial College  
South Kensington, London SW7 2AY

Gladfelter, Wayne   Mack 8  
Dept of Chemistry  
University of Minnesota  
Minneapolis, MINN 55455

Gradeff, Peter S.  
Rhône-Poulenc Inc.  
297 Jersey Ave.  
New Brunswick, NJ 08903

Grate, John H.   Mack 22  
Catalytica Associates  
3255 Scott Blvd. Suite 7-E  
Santa Clara, CA 95051

Green, M.L.H.   Mack 2  
Oxford University  
South Parks Rd.  
Oxford, OX1 3QR U.K.

Grim, Samuel O.   MLS 24  
University of Maryland  
Dept of Chemistry  
College Park, MD 20742

Haas, Carol K.   Ives 21  
E.I. duPont de Nemours & Co., Inc.  
CR&D Dept., Experimental Station  
Wilmington, DE 19898

Hanes, Ronnie   MLS 23  
USI Chemicals Co.  
1275 Section Rd.  
Cincinnati, OH 45237

Hanson, Brian   MLS 24  
Virginia Polytechnic Institute  
Blacksburg, VA

Hillman, Manny   Smith 3  
Brookhaven Nat'l Lab.  
Bldg. 815  
Upton, NY 11973

Holt, Elizabeth   Ives 31  
Chemistry Dept.  
Oklahoma State University  
Stillwater, OK 74048

Hopper, Steven   MLS 26  
Union Carbide Corp.  
Old Saw Mill Rd.  
Tarrytown, NY 12601

Hughes, Russell   Smith 3  
Dartmouth College  
Chemistry Dept./ Steele Hall  
Hanover, NH 03755

Hunter, Douglas   Mack 21  
Dow Chemical Co.  
Bldg. B-1465  
Freeport, TX 77541

Organometallic Chemistry  
Registration List

-4-

Ittel, Steven Mack 24  
E.I. DuPont de Nemours & Co.  
CR&D Experimental Station  
Wilmington, DE 19898

Jones, William Mort 31  
University of Rochester  
Dept of Chemistry  
Rochester, NY 14627

Karel, Karin Ives 23  
E.I. duPont de Nemours & Co.  
Experimental Station  
Wilmington, DE 19898

Keim, Willy Thor. 31  
University of Aachen  
RWTH Aachen Inst. Sur  
Techn. Chemie  
51 Aachen, W. Germany

Keister, Jerry Gan 1  
State University of New York  
Dept of Chemistry  
Buffalo, NY 14214

Kerber, Robert C. Mort 31  
SUNY at Stony Brook  
Dept of Chemistry  
Stony Brook, NY 11794

Kessler, Robert MLS 1  
Naval Research Lab.  
Code 6133  
Washington, D.C. 22151

Kresge, Charles Carriage 2  
Mobil Research & Dev. Corp.  
Billingsport Rd.  
Paulsboro, NJ 08066

Kubiak, Clifford Davis 4  
Purdue University  
Dept of Chemistry  
West Lafayette, IN 47907

Labinger, Jay A. Mack 23  
Occidental Research Corp.  
PO Box 19601  
Irvine, CA 92713

Laine, Richard Carriage 2  
SRI International PS 223  
333 Ravenwood Ave  
Menlo Park, CA 94025

Lennon, Patrick Davis 21  
Organometallic Chemistry  
Q2D Monsanto 800 N. Lindbergh  
St. Louis, MO 63167

Lichtenberger, Dennis Gan 2  
University of Arizona  
Dept of Chemistry  
Tucson, AZ 85721

Lin, Jiang-Jen Mort 33  
Texaco Chemical Co.  
7114 N. Lamar Blvd.  
Austin, TX 78752

Lyons, James Gan3  
SUN Tech Inc.  
PO Box 1135  
Marcus Hook, PA 19061

Mador, Irving Inf. Apt.  
Allied Corp.  
Box 1021 R  
Morristown, NJ 07960

Mador, Shirley  
(Guest of Irving Mador)

Maher, John Gan 4  
Union Carbide  
PO Box 8361  
Charleston, WV 25314

Mainz, Vera Sum 1  
Rohm and Haas Co.  
727 Norristown Rd  
Springhouse, PA 19477

Mares, Frank Gulick 23  
Allied Corp.  
PO Box 1021R Columbia Rd  
Morristown, NJ 07981

Mares, Marie  
(Guest of Frank Mares)

Mares Peter  
(Guest of Frank Mares)

Jirina Mares  
(Guest of Frank Mares)

Marks, T.J. Davis 3  
Northwestern University  
Dept of Chemistry  
Evanston, IL 60201

Organometallic Chemistry  
Registration List

-5-

Marsella, John MLS 26  
Air Products and Chemicals Inc.  
PO Box 538, Corp Science Ctr.  
Allentown, PA 18105

McGinnis, James Gulick 21  
Celanese Research Co.  
86 Morris Ave.  
Summit, NJ 07901

Meek, Devon Davis 24  
Ohio State University  
140 W. 18th Ave.  
Columbus, OH 43210

Merola, Joseph Gan 19  
Corporate Research, Exxon Res&Eng.  
PO Box 45  
Linden, NJ 07036

Messerle, Louis Gulick 22  
University of Michigan  
Dept of Chemistry  
Ann Arbor, MI 48109

Milstein, David Davis 22  
E.I. duPont de Nemours & Co.  
Central Research & Dev. Dept.  
Experimental Station  
Wilmington, DE 19898

Mocella, Michael MLS 27  
E.I. duPont de Nemours & Co.  
Experimental Station  
Wilmington, DE 19898

Moskovits, M. Mort 33  
University of Toronto  
80 St. George ST.  
Toronto Ont, Canada M5S 1A1

Motts, Graham MLS 31  
University of Pittsburgh  
Chemistry Dept.  
Pittsburgh, PA 15260

Neibecker, Denis Gulick 24  
C.N.R.S.  
Institut de Recherches sur la Catalyse  
2 Avenue A. Einstein  
69626 Villeurbanne Cedex France

Nelson, Gregory John 24  
University of Arizona  
Dept. of Chemistry  
Tucson, AZ 85721

Nicholas, Kenneth MLS 31  
Boston College  
Chestnut Hill, MA 02167

Nicholas, Paul Carriage 4  
BF Goodrich R&D  
9921 Brecksville Rd  
Brecksville, OH 44141

Nowlin, Thomas Carr 4  
Mobil Chemical Co.  
Route 27  
Edison, NJ 08818

Nowlin, Joan  
(Guest of Thomas Nowlin)

Oliver, John P. Carriage 4  
Wayne State University  
135 Chemistry Bldg. Dept of Chemistry  
Detroit, MI 48202

Orchin, Milton Sum 4  
University of Cincinnati  
Dept of Chemistry  
Cincinnati, OH 45221

Orchin, Ruth  
(Guest of Milton Orchin)

John Osborn Thor 2  
Universite Louis Pasteur  
4 Rue Blaise Pascal  
Strasbourg, France

Peterson, Jeffrey MLS 32  
West Virginia University  
Chemistry Dept.  
Morgantown, WV 26506

Pez, Guido MLS 33  
Air Products and Chemicals, Inc.  
PO Box 538  
Allentown, PA 18105

Piccolini, Richard Mort 23  
Rohm and Haas Co.  
Springhouse, PA 19477

Pregosin, Paul Sum 23  
ETH Zurich  
Anorg Chem. Univeritatstr 6  
CH 8092 Zurich, Switzerland



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Registration List

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Pretzer, Wayne Mort 32  
Gulf Research & Development Co.  
PO Drawer 2038  
Pittsburgh, PA 15230

Quirk, Jennifer Ives 23  
Union Carbide Co.  
Old Saw Mill River Rd.  
Tarrytown, NY 10591

Rakshpal, R. Inf 2  
U.S. Environmental Protection Agency  
Industrial Chemistry Branch, TS-779  
401 M. Street S.W.  
Washington, D.C. 20406

Rice, Gary MLS 32  
Exxon Research & Engineering  
PO Box 45  
Linden, NJ 07036

Richey, Herman G. MLS 27  
Penn State University  
152 Davey, Dept of Chemistry  
University Park, PA 16802

Riley, Dennis Gan 21  
Proctor & Gamble Co.  
Miami Valley Lab., PO Box 39175  
Cincinnati, OH 45247

Rosan, Alan Mort 34  
Allied Corp.  
PO Box 1021R Columbia Rd.  
Morristown, NJ 07760

Rothwell, Ian P.  
Purdue University  
Dept of Chemistry  
West Lafayette, IN 47907

Sarkoff, Deborah E. Ives 31  
Dartmouth College  
Dept of Chemistry  
Hanover, NH 03755

Sanner, Robert Mort 34  
Arizona State University  
Dept of Chemistry  
Tempe, AZ 85287

Selegue, John P. Thor 31  
University of Kentucky  
Dept of Chemistry  
Lexington, Kentucky 40506-0055

Sen, Ayusman MLS38  
Pennsylvania State University/ Dept of Chem  
University Park, PA 16802

Seyferth, D. Sum 24  
MIT  
Dept of Chemistry, Rm 4-382  
Cambridge, MA 02139

Seyferth, Helena  
(Guest of D. Seyferth)

Shapley, John Mack 23  
University of Illinois  
505 S. Mathews, Box 20 ML  
Urbana, IL 61801

Simpson, Stephen MLS 37  
University of Oxford  
Dyson Perrins Lab.  
South Parks Rd  
Oxford, UK

Singleton, David M. Gan 22  
Shell Development Co  
Westhollow Research Ct. PO Box 1380  
Houston, TX 77001

Smith, James Inf. 1  
University of Waterloo  
Dept of Chemistry  
Waterloo, Ontario, N2L 3G1

Smith, Helen Inf. 1  
(Guest of James Smith)

Sofranko, John Gan23  
ARCO Chemical Co.  
3801 West Chester Pike  
Newtown Square, P 19073

Sosinsky, Barrie Gan 36  
Rice University  
Dept of Chemistry  
Houston, TX 77251

Stanley, George G. John 21  
Washington University  
Dept of Chemistry, Box 1134  
St. Louis, MO 63130

Steinmetz, Guy R. MLS 38  
Eastman Chemicals Division  
PO Box 511, Research Labs, Bldg. 150B  
Kingsport, TN 37662

Suslick, Kenneth Gan 29  
University of Illinois  
Dept of Chem 505 S. Mathews  
Urbana, IL 61801

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Registration List

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Tazuma, James Carr 8  
Goodyear Tire & Rubber Co.  
Bldg. 133, Archwood/455B  
Akron, OH 43416

Tazuma, Frances  
(Guest of James Tazuma)

Threlkel, Rich Mort 35  
Chevron Research Co.  
576 Standard Ave  
Richmond, CA 94802

Tolman, Chadwick Mort 35  
E.I. DuPont de Nemours & Co.  
Experimental Station  
Wilmington, DE 19898

Tremont, Samuel Davis 21  
Monsanto Q3B Q315  
800 N. Lindbergh Blvd.  
St. Louis, MO 63130

Truesdale, Larry Thor 1  
Hoffmann-La Roche  
Kingsland St.  
Nutley, NJ 07110

Tulip, Thomas Thor 22  
E.I. duPont de Nemours & Co.  
CR&D Experimental Station  
Wilmington, DE 19898

Wade, Robert Carr 9  
Thiokol/Ventron Div.  
150 Andover St.  
Danvers, MA 01923

Wade, Diantha  
(Guest of Robert Wade)

Wagner, Frank S. John 1  
Strem Chemicals Inc.  
7 Mulliken Way  
Newburyport, MA 01950

Wayda, Andrea Ives 34  
Bell Lab.  
Rm. 1D-255, 600 Mountain Ave  
Murray Hill, NJ 07874

Wegman, Richard Gan 26  
Union Carbide  
PO Box 8361  
South Charleston, WV 25303

Whitesides, George M. Davis 23  
Harvard University  
Dept of Chemistry  
Cambridge, MA 02158

Wilson, Robert B. Jr. Smith 4  
SRI International  
333 Ravenswood Ave  
Merlo Park, CA 94025

Wolczanski, Peter MLS 21  
Cornell University  
Baker Lab.  
Ithaca, NY 14853

Yoo, Jin Gan 27  
Atlantic Richfield Co.  
400 E. Sibey Blvd.  
Harvey, IL 60426

Young, David A.  
Exxon Chemical Co.  
PO Box 241  
Baton Rouge, LA 70821

Zuckerman, J.J. Carr 5  
University of Oklahoma  
Dept of Chemistry  
Horman, OK 73019

Zuckerman, Rose  
(Guest of J.J. Zuckerman)

